Message

From: Nichols, Miranda (MPCA) [miranda.nichols@state.mn.us]
Sent: 1/11/2022 3:26:15 PM
To: Proto, Paul [proto.paul@epa.gov]
Subject: FYI: Draft 2022 Impaired Waters List Comments
Attachments: Assessment data 07040001-527_DO-TSS_assessed2020.xlsx

Paul,

I am considering this email reply part of Comment 2.

Miranda

From: Thiel, Travis <Travis.Thiel@CO.DAKOTA.MN.US>
Sent: Tuesday, January 11, 2022 9:14 AM
To: Nichols, Miranda (MPCA) <miranda.nichols@state.mn.us>
Cc: Anderson, Jesse (MPCA) <jesse.anderson@state.mn.us>; Engel, Lee (MPCA) <lee.engel@state.mn.us>; Cole, William (MPCA) <william.cole@state.mn.us>; Zabel, Mark <Mark.Zabel@CO.DAKOTA.MN.US>; Ryan, Mark <Mark.Ryan@CO.DAKOTA.MN.US>
Subject: RE: Draft 2022 Impaired Waters List Comments

Miranda,

This is not all that easy to explain through email in a concise fashion, but I'm going to do my best without getting into all the super fine details.

In an ideal world, the makeup of collected water quality samples and data would perfectly match the distribution of flows in order to accurately reflect the conditions of the resource and alleviate bias. I realize it's not a perfect world, and samples are collected based on best professional judgement and/or with flow conditions at the time of collection. However, the issue the VRWJPO is arguing about is whether the methodology used to assess is truly assessing representative conditions of a site. Both DO and TSS assessment criteria use a percent exceedance threshold to establish impairment, and the methodology provided indicates that the assessment should be from: "a data set that gives an unbiased representation of conditions over the assessment season." If the water quality data collected and used for assessment are skewed toward runoff (or baseflow) and therefore don't match the distribution of flow conditions (baseflow or runoff) throughout the sampling season, then the data could more easily exceed the impairment threshold because there were a greater percentage of runoff samples collected than there was percent overall runoff volume. This would result in a site being considered as impaired when it may not actually be impaired.

To try to illustrate this, I used the water quality data the MPCA provided and requested flow data for this site from the DNR to perform some analyses. DNR used the daily average flow data and the USGS GW Toolbar, a scientifically accepted program with methods for baseflow separation, to separate daily average flow into approximate values for average daily baseflow and average daily runoff. I used these values to establish what percentage of the overall flow volume consisted of baseflow and runoff for any given year. For the period of 2011-19, baseflow makes up 77% of the overall volume and runoff makes up 24% of the overall volume, though that varies slightly each year. DNR did acknowledge that the methods used for baseflow separation and rounding create the issues you see where the baseflow and runoff volumes don't equal exactly 100% but are generally close. I then took the water quality data that was used for assessment including the various notes available on whether these water quality data were collected during runoff or baseflow to compare the percentage of baseflow or runoff water quality data results collected in any given year to the total amount of water quality data results. For the period of 2011-2019, baseflow water quality data make up 45% and runoff water quality data make up 54% of the total water quality data collected for TSS, 46% baseflow water quality data and 53% runoff water quality data for all DO sampling data, also noting there were a small number of data points

that didn't have notes or sufficient information to determine if they were collected during baseflow or runoff and they were not used in these analyses.

The resulting data shows a skew of water quality data toward runoff events compared to the makeup of the flow distribution. This is resulting in an assessment process that uses data that aren't truly representative of site flow conditions and that creates a greater potential for the water resource to be considered impaired when compared to an assessment process using water quality data distributed proportionately to the flow distribution. I have attached a spreadsheet with the results of these analyses for both TSS and DO. Each of the graphs is just trying to illustrate the difference in water quality data collection type (runoff or baseflow) and distribution of volume.

In conclusion, we feel the methodology used for TSS and DO assessment purposes (and maybe other parameters that use this methodology) is potentially flawed given the subjectivity of sampling methods and inability to sample a site in a way that matches the distribution of flows. The analyses conducted and referenced in this email were for 07040001-527 (South Creek), though there may be similar concerns with the TSS and DO assessment methodology at other sites if it is applied in a similar manner. VRWJPO staff would be happy to discuss these data and analyses if the MPCA wishes to discuss this further.

We appreciate your time and attention to this matter and our concerns.

Regards,

Travis Thiel | Senior Environmental Specialist – Watershed Management
Vermillion River Watershed Joint Powers Organization
Dakota County Extension & Conservation Center
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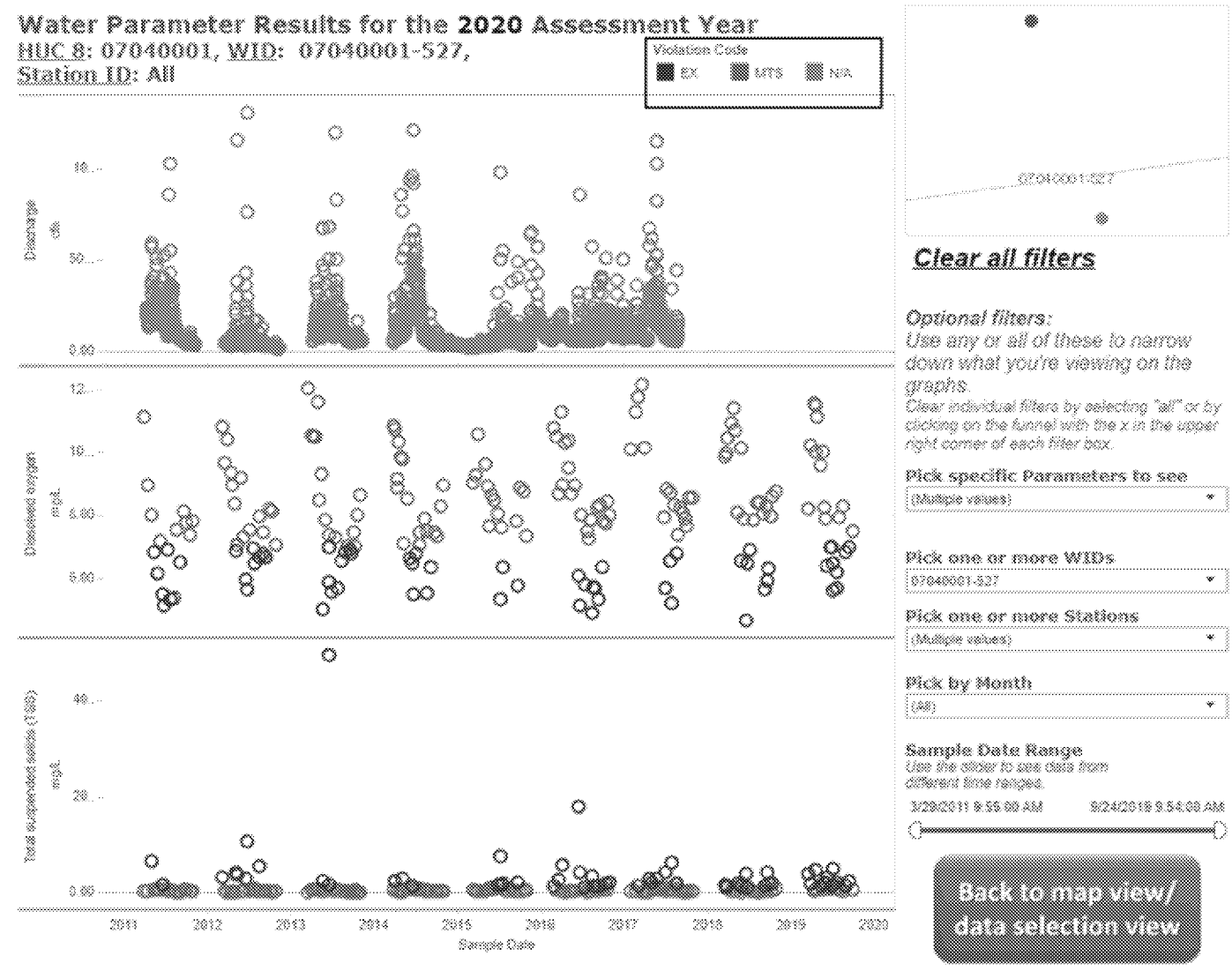
From: Nichols, Miranda (MPCA) <miranda.nichols@state.mn.us>
Sent: Thursday, January 06, 2022 9:16 AM
To: Thiel, Travis <Travis.Thiel@CO.DAKOTA.MN.US>
Cc: Anderson, Jesse (MPCA) <jesse.anderson@state.mn.us>; Engel, Lee (MPCA) <lee.engel@state.mn.us>; Cole, William (MPCA) <william.cole@state.mn.us>
Subject: RE: Draft 2022 Impaired Waters List Comments
Importance: High

Hi, Travis,

The MPCA will not formally extend the comment period but we have accommodated late comments in the past. I'd say if you got something to us a week after the 7th, *maybe* 2, we'd have time to consider it. Regardless, the MPCA will be looking at the data on 07040001-527 and guidance to respond to the comment you already submitted. I can provide the flow data used for the 2020 assessment (attached) and a screen shot of the display that the assessors used to analyze it (below).

Copied are some folks that will be helping to respond VRWJPO comments (internal link to that document). If it helps speed up the process at all, you're welcome to ask us questions.



Miranda Nichols
Minnesota Pollution Control Agency (MPCA)
Environmental Outcomes and Analysis Division
520 Lafayette Road N | St. Paul, MN | 55155
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Our mission is to protect and improve the environment and human health.

From: Thiel, Travis <Travis.Thiel@CO.DAKOTA.MN.US>
Sent: Thursday, January 6, 2022 8:29 AM
To: Nichols, Miranda (MPCA) <miranda.nichols@state.mn.us>
Subject: RE: Draft 2022 Impaired Waters List Comments

Miranda,

I've been looking through the data you provided and have been trying to separate out baseflow samples from runoff via the notes in your database or what I could obtain from the SWCD's field notes. My initial results are showing the majority of samples collected and assessed are from runoff events versus baseflow. My concerns is that this doesn't

accurately represent the stream conditions throughout each year. Perhaps it's correct, but I want to cross reference the water quality data with the flow data. In other words, I want to differentiate the percentage of time or percentage of total volume the flow data indicates runoff condition for any given year versus baseflow condition and then compare if the water quality sample results are representative of the overall make up of flow conditions. If they aren't comparable, then the resulting assessment would be skewed toward either runoff events or toward baseflow events. Given the process of assessment using a percentage of samples above an impairment threshold, I hope you can understand out concern if the data is skewed toward runoff events as this could lead to impairment when an impairment may not exist.

I've requested flow data and analyses from the DNR as they have the data stored in their database and are able to break up flow data by runoff and baseflow with some statistical confidence rather than arbitrarily choosing when flows are runoff or baseflow. They are not confident they have the resources to conduct this analyses for me, but are going to discuss it today. If they cannot provide the resources, they've provided me the USGS software used to break up data into these flow conditions and I may attempt it myself. What I'm trying to accomplish cannot be completed before the deadline for comments on the proposed impairments. Can the deadline be extended for this specific site given the timeline and information I'm waiting on or other exception be made to accommodate this need?

Thanks,

Travis Thiel | Senior Environmental Specialist – Watershed Management
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From: Nichols, Miranda (MPCA) <miranda.nichols@state.mn.us>
Sent: Wednesday, December 29, 2021 12:14 PM
To: Thiel, Travis <Travis.Thiel@CO.DAKOTA.MN.US>
Subject: RE: Draft 2022 Impaired Waters List Comments

Hi, Travis,

While we are not required to provide data until we respond perhaps giving it ahead of time, I don't see harm getting it to you ahead of time if you wanted to submit another comment by January 7th. I apologize if that was your intention, it wasn't clear to me.

Miranda Nichols
Water Assessment Section, Environmental Analysis and Outcomes Division

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Our mission is to protect and improve the environment and human health.

From: Thiel, Travis <Travis.Thiel@CO.DAKOTA.MN.US>
Sent: Tuesday, December 7, 2021 8:12 AM
To: Nichols, Miranda (MPCA) <miranda.nichols@state.mn.us>
Cc: Ryan, Mark <Mark.Ryan@CO.DAKOTA.MN.US>; Zabel, Mark <Mark.Zabel@CO.DAKOTA.MN.US>; Bokman, Melissa <MBokman@co.scott.mn.us>; Cafferty, McKenzie <mcafferty@lakevillemn.gov>; Katy Gehler (kgehler@ci.farmington.mn.us) <kgehler@ci.farmington.mn.us>; John Caven, P.E. <JCaven@hastingsmn.gov>; Behan, Michael <Michael.Behan@CO.DAKOTA.MN.US>
Subject: Draft 2022 Impaired Waters List Comments

Miranda,

Please accept the attached comment letter on behalf of the Vermillion River Watershed Joint Powers Organization.

Regards,

Travis Thiel | Senior Environmental Specialist – Watershed Management
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